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09/747,571	12/22/2000	Donald A. Lines	12748US02	3615

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EXAMINER

POE, MICHAEL I

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 11/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/747,571

Applicant(s)

LINES ET AL.

Examiner

Michael I Poe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) 21-64 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-20, in Paper No. 6 is acknowledged. The traversal is on the ground(s) that the claims could be readily searched and examined together because the apparatus claims are sufficiently related in technical subject matter (e.g., would not be a burden on the examiner). This is not found persuasive because the examiner stipulates that, due to the different classifications of the apparatus and the method, examining and searching the inventions together would represent a serious burden on the examiner. Specifically, the method requires searches in classes 264 and 156 whereas the apparatus would require separate searches in class 425 that would not be required to fully search the method. As such, these extra searches in class 425 would represent a serious burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 21-64 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 6.

### ***Specification***

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

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In the instant case, the abstract exceeds 150 words. As such, the abstract should be amended in response to this Office action to reduce the total number of words to below 150.

### ***Double Patenting***

4. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

5. Claims 1-11 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-11 of copending Application No. 10/273,703. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

6. Claims 1-11 are directed to the same invention as that of claims 1-11 of commonly assigned Application No. 10/273,703. The issue of priority under 35 U.S.C. 102(g) and possibly 35 U.S.C. 102(f) of this single invention must be resolved.

Since the U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302), the assignee is required to state which entity is the prior inventor of the conflicting subject matter. A terminal disclaimer has no effect in this situation since the basis for refusing more than one patent is priority of invention under 35 U.S.C. 102(f) or (g) and not an extension of monopoly.

Failure to comply with this requirement will result in a holding of abandonment of this application.

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple

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assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claim 12 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 of copending Application No. 10/273,703 in view of U.S. Patent No. 4,752,518 (Lohrke et al.).

#### **Claim 12**

Claim 1 of the instant application, upon which claim 12 is dependent, is identical to claim 1 of copending Application No. 10/273,703; therefore, all the limitations of claim 1 of the instant application are taught by claim 1 of copending Application No. 10/273,703. The claims of copending Application No. 10/273,703 do not specifically teach puncturing at least one surface of the material prior to embossing the material. However, Lohrke et al. teach a method for forming a graphite foil including compressing a mass of expanded graphite particles together so as to form a graphite foil and forming a plurality of apertures into the porous graphite material of the foil (puncturing at least one surface of said material prior to embossing said material) whereby the apertures substantially prevents formation of bubble-like deformations on the surface of the foil when it is heated or exposed to a vacuum (column 5, lines 15-52). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to puncturing the material prior to the vacuum embossing process of the claims of copending Application No. 10/273,703 as taught by Lohrke et al. to prevent formation of bubble-like deformations on the surface of the foil as taught by Lohrke et al.

This is a provisional obviousness-type double patenting rejection.

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9. Claims 13-19 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 6-11 of copending Application No. 10/273,703 in view of Japanese Patent Publication No. 10-040937 A (Seiji).

**Claim 13**

Claim 1 of copending Application No. 10/273,703 teaches a method of embossing expanded graphite sheet material comprising embossing said material in an embossing atmosphere at a reduced pressure less than atmosphere pressure (then embossing said material). Although claim 1 of copending Application No. 10/273,703 teaches the basic claimed process, claim 1 of copending Application No. 10/273,703 does not specifically teach removing at least a portion of the gas from within the material by exposing the material to a pressure less than atmospheric pressure prior to the embossing step. However, Seiji teaches a method of manufacturing a collector for a fuel cell including turning on vacuum pumps 32 and 34 to reduce pressure of a cavity section surrounding a punch 24, a female mold 26, and a die 22 (removing at least a portion of the gas from within said material by exposing said material to a pressure less than atmosphere pressure); pressing a thermal-expansion graphite powder between the punch 24, the female mold 26, and the die 22 while continuing the application of the vacuum by vacuum pumps 32 and 34 (then embossing said material); and turning off vacuum pumps 32 and 34 after the completion of the pressing cycle (paragraphs 37-39 of the English machine translation of Seiji). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to apply the vacuum prior to the embossing step in the process of claim 1 of copending Application No. 10/273,703 as taught by Seiji to thereby assure no bubbles were present in the material prior to embossing as taught by Seiji.

**Claims 14-19**

The discussion of claim 1 of copending Application No. 10/273,703 as applied to claim 13 above applies herein.

Claims 14-19 of the instant application are identical to claims 6-11 of copending Application No. 10/273,703; therefore, claims 6-11 of copending Application No. 10/273,703 obviously teach all the limitations of claims 14-19 of the instant application.

This is a provisional obviousness-type double patenting rejection.

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10. Claim 20 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/273,703 in view of Japanese Patent Publication No. 10-040937 A (Seiji) and U.S. Patent No. 4,752,518 (Lohrke et al.).

**Claim 20**

The discussion of claim 1 of copending Application No. 10/273,703 and Seiji as applied to claim 13 above applies herein.

The claims of copending Application No. 10/273,703 in view of Seiji do not specifically teach puncturing at least one surface of the material prior to embossing the material. However, Lohrke et al. teach a method for forming a graphite foil including compressing a mass of expanded graphite particles together so as to form a graphite foil and forming a plurality of apertures into the porous graphite material of the foil (puncturing at least one surface of said material prior to embossing said material) whereby the apertures substantially prevents formation of bubble-like deformations on the surface of the foil when it is heated or exposed to a vacuum (column 5, lines 15-52). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to puncturing the material prior to the vacuum embossing process of the claims of copending Application No. 10/273,703 in view of Seiji as taught by Lohrke et al. to prevent formation of bubble-like deformations on the surface of the foil as taught by Lohrke et al.

This is a provisional obviousness-type double patenting rejection.

11. Claims 12-20 are directed to an invention not patentably distinct from claims 1 and 6-11 of commonly assigned Application No. 10/273,703. Specifically, claims 12-20 are not patentably distinct from claims 1 and 6-11 of copending Application No. 10/273,703 for the reasons set forth in the obviousness-type double patenting rejections above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned Application No. 10/273,703, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee is required under 35 U.S.C.

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103(c) and 37 CFR 1.78(c) to either show that the conflicting inventions were commonly owned at the time the invention in this application was made or to name the prior inventor of the conflicting subject matter. Failure to comply with this requirement will result in a holding of abandonment of the application.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1, 5-11 and 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication No. 10-040937 A (Seiji) in view of U.S. Patent No. 4,676,515 (Cobb).

**Claims 1, 5, 6, 13 and 14**

Seiji teaches a method of manufacturing a collector for a fuel cell (a method of embossing graphite material) including turning on vacuum pumps 32 and 34 to reduce pressure of a cavity section surrounding a punch 24, a female mold 26, and a die 22 (removing at least a portion of the gas from within said material by exposing said material to a pressure less than atmosphere pressure); pressing a thermal-expansion graphite powder between the punch 24, the female mold 26, and the die 22 while continuing the application of the vacuum by vacuum pumps 32 and 34 (then embossing said material; embossing said material in an embossing atmosphere at a reduced pressure less than atmospheric pressure and maintaining a reduced pressure at least during the embossing step; continuing to evacuate gases from said embossing atmosphere during said embossing step); and turning off vacuum pumps 32 and 34 after the completion of the pressing cycle (paragraphs 37-39 of the English machine translation of Seiji).



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Although Seiji teaches the basic claimed process, Seiji does not specifically teach that the graphite material being embossed is an expanded graphite sheet material. However, Cobb teaches a method of forming a composite embossed sandwich gasket with a graphite layer including positioning a generally flat sheet of compressed expanded graphite 22 between a pair of embossed metallic layers 20 as with a suitable adhesive (expanded graphite sheet material; said material comprises a plurality of sheet materials comprising at least one expanded graphite sheet) and compressing (embossing) the assembly sufficiently to form a laminated structure 12 without substantially compression of the expanded graphite layer (the method further comprising laminating said plurality of sheet materials during said embossing step) (column 2, lines 36-54). Note that, although Cobb teaches that the metallic layers are previously embossed, the action of compressing the graphite layer between the embossed metallic layers would effectively emboss the graphite layer. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to emboss and laminate the structure of Cobb using the method of Seiji to thereby provide a gasket without bubbles as are typically formed during compression of expanded graphite materials by the method of Seiji in view of Cobb.

**Claims 7-11 and 15-19**

The discussion of Seiji and Cobb as applied to claims 1 and 13 above applies herein.

Although Seiji in view of Cobb teaches embossing at a reduced pressure below atmospheric pressure as discussed above, Seiji in view of Cobb does not specifically teach that the reduced pressure is in the claimed ranges (e.g., less than or equal to about 400 torr, 350 torr, etc.). In this regard, Seiji further teaches that the degree of vacuum (i.e., reduced pressure) is a function of the compressibility P of the graphite powder (paragraph 38 of the English machine translation of Seiji). As such, Seiji teaches that the degree of vacuum is a result-effective variable. Since the degree of vacuum is a result-effective variable, it would have been prima facie obvious for one of ordinary skill in the art to have obviously determined the optimum degree of vacuum (i.e., reduced pressure) in the process of Seiji in view of Cobb through routine experimentation based upon the compressibility of the graphite layer.

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14. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication No. 10-040937 A (Seiji) in view of U.S. Patent No. 4,676,515 (Cobb) and U.S. Patent No. 5,122,318 (Bonet et al.).

**Claims 2-4**

The discussion of Seiji and Cobb as applied to claim 1 above applies herein.

Seiji in view of Cobb does not specifically teach that the embossing atmosphere is an inert gas (such as nitrogen, helium or argon), preferably substantially pure nitrogen. However, Bonet et al. teach a process for producing an atmosphere for the manufacture of high performing composite elements including molding, under vacuum, fibrous structures made from fibers which are reinforced with graphite carbon or the like in an atmosphere comprising nitrogen having a content of oxygen between 0.5% and 6% (said embossing atmosphere is an inert gas; said inert gas is selected from the group consisting of nitrogen, helium and argon; said inert gas is substantially pure nitrogen) (claims; column 1, line 19 – column 2, line 19). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to use an inert gas atmosphere in the process of Seiji in view of Cobb as taught by Bonet et al. to provide a relatively low-cost embossing atmosphere which addressed the safety concerns associated with oxygen/air atmospheres as taught by Bonet et al.

15. Claims 12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Publication No. 10-040937 A (Seiji) in view of U.S. Patent No. 4,676,515 (Cobb) and U.S. Patent No. 4,752,518 (Lohrke et al.).

**Claims 12 and 20**

The discussion of Seiji and Cobb as applied to claims 1 and 13 above applies herein.

Seiji in view of Cobb do not specifically teach puncturing at least one surface of the material prior to embossing the material. However, Lohrke et al. teach a method for forming a graphite foil including compressing a mass of expanded graphite particles together so as to form a graphite foil and forming a plurality of apertures into the porous graphite material of the foil (puncturing at least one surface of said material prior to embossing said material) whereby the apertures substantially prevents formation of bubble-like deformations on the surface of the foil when it is heated or exposed to a vacuum (column 5,

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lines 15-52). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made and one of ordinary skill would have been motivated to puncture the material prior to the vacuum embossing process of Seiji in view of Cobb as taught by Lohrke et al. to prevent formation of bubble-like deformations on the surface of the foil as taught by Lohrke et al.

### **Conclusion**

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 4,395,299 (Riggs et al.), U.S. Patent No. 5,570,501 (Atkinson et al.), U.S. Patent No. 6,454,978 B1 (Thielman), U.S. Patent Application Publication No. 2002/0180088 A1 (Hashiguchi et al.), U.S. Patent Application Publication No. 2003/0051797 A1 (Lines et al.) and U.S. Patent Application Publication No. 2003/0107147 A1 (Thielman et al.) have been cited of interest to show the state of the art at the time the invention was made.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael I Poe whose telephone number is (703) 306-9170. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on (703) 305-5493. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1234.



Michael Poe/mip



**MICHAEL COLAIANNI  
PRIMARY EXAMINER**